Yi2
7397
F 10

Touch cont.? —

Taste 331.

Smelling 340

viz: Hairs
They defend the surface of the body from
~~irritation~~ attrition in some parts, - irri-
-tant warmth to it in others, - and
in all - perhaps they serve to connect
the ~~cuticle~~ outward & inward
Cuticle more intimately together.

6 The Cuticle and true Skin are not
confined to the external parts of the
body. They are
~~They are~~ extended into the
Anus - Urethra - Vagina - Mouth -
Pharynx - Nostrils - ~~&c~~ and probably
exists a little diversified in the stomach
and bowels. — Hence we derive our
most extensive views of the
Sense of touch, which will enable
us to explain many of the Operations

of external impressions in producing
diseases. ~~as for instance~~ ~~but without~~
the sympathy between the skin &
the Stomach ~~may~~ probably depends wholly
upon the communication of impression
from the former to the latter by the
continuity ~~contiguity~~ of the skin, without the
intervention of the brain. 2 It is
a striking instance of continuous sympathy.
7 The ~~touch~~ sense of touch is greatly
influenced by the ~~the~~ blood vessels which
accompany the Nerves, and those
external parts of the body which have
most ~~the~~ blood vessels, possess the
most sensibility. In support of
the first proposition I shall read

to you an experiment made by
=[illegible] Dr Monroe, and communi=
=cated in his Lectures. "I found (says
the Dr) when I poured a Solution of
Opium under the Skin of the thigh
& leg of a living frog, not only the leg
itself was soon affected, but the affection
was communicated to the most dis=
=tant part of the body by a Sympathy
of the nerves; but if previously to the
application of the Opium, I cut asop
the femoral blood vessels, the effects
of the Opium were not communica=
=ted to the distant parts, which proves
that the arteries accompanying the
nerves, or the arteries of the pia mater

of the Nerves, have a great effect in
fitting the Nerves to receive, & comm=
=unicate impressions". — But
this Imposition will receive still grea=
=ter support from a fact mentioned
by Mr Bell in his Surgery in his
~~[illegible]~~ account of the Operation
for the Cure of Aneurism. His
words are "Immediately after the
Operation, the patient complains
of an unusual numbness, & want
of feeling in the whole member" and
again in other place, he says "Im=
=mediately after this Operation, the
want of feeling in the part is very
great, & in proportion as the

circulation in the Other part becomes
more
considerable, the degrees of feeling also
augments. — If we could suppose the
Nerves of the parts below to be always
included in the ligature with the Artery,
the Numbness which ensues immed-
=diately to the Operation might easily
be accounted for; but I have known
it happen, when I was certain that
nothing but the Artery was secured by
the ligature; and besides, altho' the
knot upon the Nerves would account
for the immediate loss of sensibility
which follows the Operation, it will
not in any degree serve to explain
the return of feeling on the circulation

V To this I answer that the blood
vessels are by no means found destitute
of blood in persons who have ~~died~~ died
of fatrine, but admitting this to be
the Case, may V turn over to left Hand
page.

being again restored!" To these striking facts I might add, that sensation in the Skin is always proportioned to the greater or less fulness or tension of the blood vessels which terminate in the surface of the body. This state of nerve susceptibility in parts the pathology of the Skin peculiarly illustrates. There is only one seeming exception to this remark & that is the sense of touch which is increased by fasting, but in which case there is said to be the quantity or diminution of Stimulus of blood. [illegible] the capillaries to be [illegible] tion

[illegible] may these not be [illegible]

V, [illegible] an accumulation of

Excitability in the extremities of the nerves

induced by the Abstraction of the Stimulus

of Aliment [illegible] and blood as to render

them more easily moved by other Stimuli

= li. 2 —

of the Stimulus of Aliment, and probably the reason why since it increases the Sense of touch.

That the sensibility of different external parts of the body is greatly influenced by the Quantity or force of the blood which accompanies the Nerves, I prove from the peculiar sensibility of the breasts of females, & the genitals - and lips of both sexes in each of which there is a profusion of blood vessels. In the lips - the colour of the blood is visible - and every one knows how easily and plentifully it is effused from the most trifling wounds. -

8 It I said formerly that it

a different sett of nerves are employed to convey the sensation of taste - smell - & perhaps of light & hearing to the brain, from which these organs for the common purpose of sensation. I suspect something of this kind takes place in the organs of touch as propos a peculiar or specific sensibility, such as the fingers - lips - and female breasts.- It is certain that it takes place in the organs of generation. Of this Jn° Hunter mentions a remarkable proof. He tells us "that he knew a gentleman who had the glans

V I shall hereafter mention several
Other instances of the translation of
specific sensation.

In ~~[illegible]~~ Laura Bozhaane, who was deaf, the
~~[illegible]~~ hearing ~~[illegible]~~ sensation ~~[illegible]~~ was transferred from
the ear to every part of the body.

Penis completely destroyed by a mortification almost as high as the Union of the Penis with the Pubis; & at the edge of the Old Skin, at the root of the penis where the nerves ter= =minated, was the peculiar sensation of the Glans penis, and the sensation of the glans itself, was now only com= =mon sensation; "therefore the glands has different nerves, and those for common sensation may come thro' the body of the penis to the glans". "

So much gent. for the structure of the Organs of touch in general,

V and by the small ~~canals~~ fibres which
~~are~~ are formed in ~~Capillaries~~ concentric layers
upon the extremities of the fingers.
- Our inequality of Surface is thus given to
them, which increases their Sensibility.

I proved
9ᵈ to remark that the extremities
of the fingers possess the sense of
distinguishing by contact the qualities of ex:
=ternal Objects in a much higher
degree than any other parts of the
body. [For this they are fitted by an
uncommon smoothness of the skin
in w: the nerves terminate, which terminate in the
papillæ nerves by the nails placed behind them, and
=by the nails placed behind them, and
extremities of the fingers are defended =
[Perhaps the nails serve the
further purpose of increasing sensation
by a species of reverberation.] The nerves
in the fingers
are said to extend themselves this certain
in
papillæ very act of touch.
" "
but these papillæ have never been

by

V: 10: To encrease the sense of touch to the highest degree, it is wisely distributed this, a thumb & four fingers on each hand, & ~~of~~ the perceptions are most exact. when the whole of them are employed in sensa-tion. This I shall mention ~~mentioned~~ as a reason for using four fingers when practicable in feeling the pulse.

demonstrated. Even Dr Haller who

~~found~~ mentions them very confidently

[in his 423 & (of his first line) Sums to infer their

existence only from the Analogy of

the tongue where they have been

seen, and where we shall see hereafter

they are necessary to the ~~perfection~~ sense of taste.

Malphigi is the only Anatomist who

pretends to have seen the papillæ in the ends

of the fingers. — V

Cy

12: That the Sense of touch should be exact

and perfect, it is necessary that the brain

should be free from ~~distortion~~, compression,

, and that ~~so~~ these should be no Obstruction

on the nerves which connect the brain with

the fingers, — that the circulation of the

That the impression of the body on which touches
should not be too violent, or too
gentle — that it should be continued
for some time — and

To common impressions. Thus D^r Haller relates an instance of a man who could walk barefooted, on hot iron.

Next to the fingers, the lips possess a high sense of touch. This is obvious in Children who always put the things they handle to their lips in order to assist them in acquiring a knowledge of their properties. This sense of touch in the lips is lessened by disuse from our employing our fingers, exclusively in after life.

blood to the fingers should be easy & plentiful,
that the temperature of the fingers should
neither be hot, or cold beyond a cer=
=tain degree. that the extremities of the
fingers should neither be denudated nor
covered with too thick a skin. The latter
tends very much to open the sense of
touch, as we see every day in labourers,
more especially in Smiths who often burn,
and thereby render callous the sentient
extremities of their fingers. The soals
of the feet from use sometimes become very insensible
. I mentioned formerly the effects of
habit on the sense of touch in common
with the other senses. It is from habit it derives its superiority
over the toes, in the fingers. — It acquires in
this way, and more especially if it be
deprived of the aid of other senses, an acu=
=racy that goes almost beyond conception.

V mr Le Cat ~~narrates~~ relates the history of a
man who could distinguish every Card
in a pack by the sense of touch.

Mr Boyle relates a story of a blind Organist who could distinguish colors & even black letters by his fingers. He always succeeded best after fasting a while, & when the weather was not very dry. V

The readiness and acuteness with which Physicians distinguish the different States of the Pulse by means of this finger is the effect of habit, and can neither be imitated, nor comprehended by persons who are not accustomed to it. — To render the sense of touch as acute as possible in all cases, it is necessary that the brain should be preserved free from ~~fanatism~~ the effects of impressions upon all the other Senses. — It will therefore be

V Its correctness is very much encreased by 1 putting the hands in warm water. 2 by previous by rubbing it over a rough body. It acts by exciting ~~[illegible]~~ the extremities of the nerves. 3 by motion. ~~[illegible]~~ The best & coldest of water is felt most sensibly by moving the hand backwards & forwards in it.

VI The accuracy of the sense of touch in distinguishing numbers is acquired by habit. Thus we know from experience that a marble when felt in the hand by two fingers - is single - but if we cross the fingers - then - we have a false perception of two marbles.

VII We ~~[illegible]~~ to learn the thickness of bodies by it without the assistance of our eyes. but not the comparative thickness of one body more than another. This fact is taken notice by Dr Wiley in the mid Repository. But may not this be owing to a difference in the vibrations of the bodies felt, & may not the ears assist [illegible] hearing these vibra-tions? X tion the mind originates in, or

most acute in Darkness & in silence.

To the sense of touch we are indebted for all our ideas of the primary Qualities of bodies. From the sense of touch being so early apprec= ated with the sense of seeing, we are apt to ascribe to the use of our eyes certain parts of knowledge which we acquire only by the sense of touch - such as our ideas of extension - figure - motion - hardness & softness - The eyes touch of the properties of nothing the Objects without the sense of touch - and were it possible for the sense of touch to be abolished im= = mediately after birth, we should never be able to distinguish hardness from softness - nor matters which were rough from such as were smooth.

its faculties are first excited, by the impressions
on the sense of touch. They begin in
the womb, from the moment and
from external pressure. Abortions are often
produced by them. It is in consequence
of its being the most early sense in its
operations (beginning on the 4th month) that it is the most perfect of
any of them. The other senses do not
open till the 9th month & sometimes not
till after it. The sense of touch is the
source of instinct. It begins in utero.
The superiority of this sense is evinced by
seeing the conduct of the apostle Thomas, who
did not believe in the identity of his
Saviour's body after his resurrection although he had seen
with him until he had satisfied
his senses of touch by thrusting his hand into
his side.
go to 332.

Even the ~~blushing~~ rose, would not be
distinguished from a flame of fire, ~~to~~
without the Sense of touch. ~~This~~ This
Observation occurred with great force to
~~the~~ Molineaux the friend of Mr Locke,
and ~~it was proposed by him to~~ the
following Question was proposed to by
him in consequence of it, to that great
~~metaphysician~~ Metaphysician". Suppose said Mr
Molineaux that a boy born blind should
be taught by means of his fingers to
distinguish accurately between a Cube
& a Ball made of the same kind of
~~Metal~~ Metal - and of the same weight, - and
suppose the boy should afterwards suddenly
receive his sight - and the cubes and
~~round~~ pieces of Metals should be placed before

his eyes. Do you suppose he would be able to tell which was the Cube, and which was the Ball." Mr Locke acknowledged himself unable to answer this Question — You will certainly therefore excuse my Attempting it.

The Starting of the horse is owing probably to nothing but his ignorance of the properties of bodies from the want of the sense of touch. The timidity, or folly of many other animals may be traced to the same cause. In short the superiority of man ~~is obliged~~ over the brute creation, is derived in many particulars from his possessing to exclusively the sense of touch. To this he owes his knowledge of not only of most of the mechanical elegant Arts, but his ability to direct the pen and the type in the more important business employments of writing & printing. Helvetius considers it as a more distinguishing characteristic of man than Reason or Speech

go back

I have said that all our knowledge is acquired thro the medium of the senses. — This being the case, it follows that the more acute, and extensive we render the senses in their capacity of receiving impressions the more we shall be able to increase our knowledge. For this purpose certain means have been employed which I shall in order mention ~~in order~~ after considering each of the senses. The sense of touch has been improved 1 By discovering persons by feeling their faces & hands or the hair of their heads. 2 by distinguishing and the leaves of trees. Coins &c 3 by finding out what is written in the palm of the hand with a finger, or a pencil. 4 by distinguishing the difference

V 12 by distinguishing the frequency of certain motions - particularly the pulse in a given time.

in the temperature of water and tasting it by
~~[illegible]~~ a Thermometer. 5 by distinguish-
-ing ~~[illegible]~~ substances of similar forms, but
of different weight. 6 By distinguishing
different kinds of wood, and cloath.
7 By ~~[illegible]~~ finding out the number of
leaves and
pages in a book. by feeling its size. 8
by ~~distinguishing~~ distinguishing blanks, - written, and printed
pieces of paper from each other. 9 By
distinguishing the different lengths of sticks
of the same diameter & nearly of the same
length. 10 by distinguishing different kinds
of earths and fruits when placed in
the hand. 11 By distinguishing the the
difference in Coins by their inscriptions.

Just before we exercise our
fingers in any or in all the

ways that have been mentioned,
the following means will be
found useful in imparting sensibility
to the fingers.

1 ~~Plunging~~ Holding the hands for a few
minutes in warm water.

2 Rubbing the fingers over a rough
substance of any kind. This acts by
exciting the extremities of the nerves.

~~3 By pressure~~

The sense of touch is further very
much increased by moving the fin-
=gers backwards and forward upon the
body we wish to examin. also by
moving the fingers for a while, in
order to favour the accumulation of

in the ways that
~~only by faithful~~
V ~~only~~ to be acquired ^

have been mentioned, that cannot
fail of adding very much to the
safety and pleasure with which the
different branches of medicine may
be practised, but to the reputation
& interest of the profession. That it
is possible to ~~add~~ to the acuteness of
sensation ~~of the~~ in the fingers. I
infer ~~I~~ not only from its having
often attained, but from its being
so often induced by diseases. -

sensorial power & lastly by concen-
-trating as much sensorial power
as possible in the fingers by closing
up the sense of sight by shutting
the eyes and of hearing by avoiding
conversation and noise of all kinds.

To many different Artists this
extension of the sense of touch is of great
consequence, but to none of them
more than to the physician, the Surgeon
and Accoucheur. A ~~quick~~ correct
knowledge not only of the pulse, but of
the temperature of the Skin - of the nature
of tumors external & internal; of extra-
-neous matters which are removed beyond
the evidence of all the other senses, ~~xxx~~ is a

Of Taste

This Sense is seated only in the tongue, by which I understand that body which is placed in the mouth, and which is capable of the greatest Variety of motion.

The following peculiarities relative to this Sense, deserve our notice.

1 The tongue abounds with blood vessels, nerves & muscles & Lymphatics. It has an artery and vein and four muscles on each side of it, from which some Anato= =mists have drawn an imaginary line thro' it. It would seem to be composed of two parts, provided with the same organs appended to each of them. Some saw it equally divided by a straight line, one side of which was [illegible]ed,

& the Other White. It was in a palsy.
Perhaps this may be one reason why
Cancers & Other Sores so seldom spread thro'
the whole tongue. May it not be plain
by means of this structure upon a footing
with Vision, Hearing & Smelling all of
are performed by a double set of Organs?
2 The Sense of taste is seated ~~in the~~ only
only in the tip and edges of the tongue. This
has been demonstrated by many experi-
-ments made by Bellini & since repeated
by Dr Boerhaave. The palate & fauces it is
lips - the
true distinguish some Objects of taste. ~~The~~
Thus hellebore is perceived ~~by the~~ upon
the lips - Belladonna by the palate, and
wormwood by the fauces, but these
should rather be considered as specific
Sensations, than as

belonging to the Sense of taste.

3 The Nerves which are the more immediate organs of taste, project from the tongue in small papilla which are of different shapes, and are furnished with small blood vessels which accompany them. The papilla are much larger in some Quadrupeds than in the human Species. The more they project, the more acute is the Sense of taste.

4 The tongue is supplied with nerves for the common purpose of sensation from the 8th and 9th pairs, but the 5th pair is supposed to furnish that branch which forms the more immediate organ of taste.

5 The tongue Abounds with blood vessels. In the neighborhood of the papillae

they furnish a liquor which is pour-
=ed forth upon the tongue in order to
favour the action of taste. This liquor
is encreased, and decreased in fluess.
It is sometimes thickned in its con-
=sistence, in which case the tongue is
said to be foul or furred.

6 The sense of touch is more exquisite
in the tips of the tongue than in the
fingers - hence we distinguish the round-
=ness of a egg by the warmth of one
end of it when applied to the tongue.
The fingers are unable to
perceive this warmth. It is because
the sense of touch is more acute in
the tongue than in the fingers that
children apply the bodies that

√ following circumstances. 1st By
the =

2d By the confinement of the Object
of taste exclusively to the tips of the tongue.
In this way the purchasers of wine test its
quality. If it happen to be swallowed or
they eat or drink something to remove the
impression of the wine upon the palate.

are put into their mouths so generally to
their nature and qualities.
Since
Sense of taste is influenced by the V
[illegible] different stages of life. It is most ex-
=quisite in infancy. It is for this reason
that Sugar which proves but a feeble
Stimulus, is so grateful to young Child-
=ren. In more advanced life & particular-
=ly in old age, the tongue becomes less
sensible to the Stimulus of Sweet sub-
=stances, and requires Saline, or aro-
=matic Substances to produce in it the
excitement of pleasure. If
By
3 by the
we lose our relish for a mild
weather. or
cold, or cool day, and Coffee on a hot

of their power of exciting taste by means of Cold. It is reported by a certain noble traveller, that all bodies lost their rapid qualities upon the cold Summit of the pike of Teneriffe Wine is said to have its most perfect relish when the Thermometer is about 55°.—

day. Aids are most grateful in ~~Winter~~ Summer, and ~~Summer~~ cordial Wines in Winter. Many rapid Evils are dispensed V

4 By certain substances previous ly taken in the mouth. Bitter - Sweet & aid aliments and drinks, impart a portion of their tastes to all the mediums that are taken immediately after them.

5 by certain Odors which pass thro the nose, and blend themselves with the Objects of taste.

6 By certain Diseases in the Sense of ~~taste~~ taste, also: in the nose & the brain. The tongue when denudated of its Skin, or when inflamed, or otherways diseased, imparts the most erroneous Sensations to the brain. a Catarrh which

V Some Physiologists add
to, or certain insipid substances
to the number of the Objects of
tastes, but they act negatively
only, and therefore should no more
be included among the Objects of
taste than the negative sensation
which arises from the absence
of light, should be considered as
one of the impressions of light.

the nose
obstructs, or inflames the Sensorium
Membrane impairs Or destroys the
Sense of taste. A disease in the brain
has the same effect. To return

8. The Objects of taste are such Substances
as are sweet, sour, rough, bitter, saline,
nitrous, Spissitous, acrid aromatic &
putrid Substances. Dr Cullen supposes them
to be Sixteen in number. The probably
includes in them such impressions as
are made upon the lips, and fauces. —
There is good reason to believe they
are like the primary Colors between
in number, and that the immense
Variety of them are Compounds of
those seven. There exists probably
among them the same harmony &
discord that takes place among Colors.

V Ze thus

As opium is the most durably agreeable
Color to the eye, from its moderate stimulus,
objects of taste that ~~[illegible]~~ are constantly agreeable
from their imparting the same intermediate and moderate degree of
impression to the tongue. These
are bread, milk, simple meats, and
wild vegetables which like the verdure
of our fields always please, but never
satiate, while high seasoned food like
the glaring red, and vapid aliment like
the feeble violet, ~~[illegible]~~ to the eye) soon
pall the taste, or leave it in a languid
state, alike unfavorable to health &
pleasure.

All tastes are excited by the sapid body
being dissolved in the liquor which
is secreted in the tongue. A dry tongue
can relish nothing. In the solution of

sapid bodies in the mouth something like
agitation takes place; for the tongue after
receiving the sapid body throws it against
the teeth, and roof of the mouth by which
means the solution is both expedited
and rendered more perfect. To
The remark of the solution of a sapid
body in the tongue before a taste can
be perceived from it, there is one excep=
=tion. The metals are insoluble in the
liquor of the tongue, and yet they cer=
=tainly impart a sense of taste to it.
To The perfection of the sense of taste is
much influenced by habit. Persons who
have long been accustomed to drink ma=
=deira wine can tell at once whether it
he has been taken from bottles, or drawn
from a Cask. They can even distinguish

11. The Sensations imparted to the tongue has some Variety in them. They are generally constant, as if ~~-~~ ~~from~~ they arose from the contiued action of one impression; But some Substances create something like an Undulation in the ~~[illegible]~~ Nerves of the tongue, that is the Sensation of taste increases or lapses, or in Other words comes & goes. -

the most trifling Adulterations of it by a mixture of Sherry or Lisbon, or of both. There was some years ago an Old Madeira Merchant in this City who could tell by the taste, the Wine of every parish in the Island of Madeira. V

12 The Sense of taste, like that of touch is not an independant Sense. It is intimately connected with the perfect exercise of the Sense of Smelling, - hence the reason why it is so easily affected by a Cold, or by a disease in the Nose. Even the eye aids the Sense of taste. This is evident from our not being able to in some instances to distinguish the difference between several kinds of meat with our eyes shut.

13 The Sense of ~~touch~~ taste, like the

Sensation peculiar to the glans penis formerly mentioned, may be transfused.

Lepicum relates the Case of a girl born without a tongue who had a high sense of taste dispersed throughout her mouth, and a Surgeon in Saumur mentions a similar case in a boy who lost his tongue in the small pox. This sense in some Animals is supposed to reside in the Stomach. It is absent in Otters. In the Anteater and in several other Animals, the tongue is supposed only to assist in conveying food into the Stomach. —

14 The tongue has an intimate Connection with every part of the System, and impressions made upon it have

an extensive influence in Medicine: a few Drops of Lavender upon a lump of loaf sugar when dissolved upon the tongue has ~~carried the body from~~ carried Vigor into every fainting, and infused into every part of the body. From this Sympathy of the Nerves of the tongue with the whole body, it is obvious Cordial Medicines intended to produce a general effect, should always be given in such a form as to diffuse themselves over the mouth in order that the tongue may feel their impression as long as possible.

15 The Sense of ~~taste~~ Touch serves to direct us in the Choice and preparation of whol-
=some Aliments, for while this sense retains its healthy & simple state,

such articles of food as are agreeable
to the taste are with a few exceptions,
generally wholsome & nutritious. It
is much prevented in civilized Society
by intemperance, ardent Spirits and
tobacco. for which reason Savages, &
even the Beasts ~~of the field~~ will frequently
derive more pleasure from its gra-
-tification than man in his most
refined and cultivated state. —

Having enumerated the principal
and the most interesting facts which
belong to the Sense of taste, we proceed
next to inquire into the cause of the
variety of tastes, which are imparted
to the tongue by the different Objects

of taste. Baker & some other philoso=
=phers have supposed that all sapid
bodies owe their sapor to their being
Salts, and that each of those salts having
a figure peculiar to itself, imparts a
peculiar and specific impression to the
tongue; But this opinion is founded
upon erroneous premises, for all sa=
=pid bodies are not of a saline nature, and
many saline bodies which have exactly
the same form, such particularly as
the Salts of Sorel and Sugar, impart a
very different sensations to the
the previous stones which have the
same angular forms impart no
taste at all to it. ——

Dr Reid has proposed another solution

of this Question in his ingenious Essay upon the Mind. He supposes that every Sapid body enters into mixture with the Liquid upon the tongue, and that the Variety of tastes is occasioned by a similar Variety of new Compounds formed by these mixtures, each of which gives a new & specific impression to the nerves of the tongue. This explanation however ingenious, is hypothetical, and is incapable of demonstration.

~~Dobereiner~~ The following explanation of the Cause of the Variety of tastes will I hope be more Satisfactory ~~of the~~ ~~Dobereiner's~~ ~~Experiments~~ ~~to the~~ ~~Experiments~~ ~~Dobereiner~~ ~~to the~~

As every thought as I hope to prove to you hereafter Depends upon a different motion in the brain, so every different sensation of taste appears to depend upon a different motion in the Nerves of the tongue induced by the ~~upon~~ rapid body which acts upon it. Thus Sugar excites by a peculiar & Specific motion in the nerves of the tongue, the sensation of sweet - Acids ~~acids~~ and bitters in like manner excite the sensations of sour and bitter. That this is the case I infer, not only from the manner in which pleasure and pain are produced, but from many striking facts which occur in Diseases, for to diseases we are indebted for our knowledge of many important truths in Physiology. The facts I allude to are as follow. Dr Hartley tells us

V I once attended a lady in an intestinal
disease in whom several of her drinks
and particularly Port Wine imparted
the taste of Sugar.

that bitters, and Acids applied to a fungus
on the brain, produced the sensations of
bitter, and Sour upon the tongue. This
appears to have been occasioned by exactly
the same motions being excited in the
~~the~~ nerves of the tongue from their
sympathy with the fungus in the brain
which when ~~[illegible]~~ directly stimulated
by bitters and Acids produce those
~~[illegible]~~ sensations in the tongue. Again
Dr Dewees informed me that he had a
patient in the Summer of 1807 in whom
every thing she applied to her tongue
produced the sensation of bitter. This
appears to have been occasioned by
~~[illegible]~~ those Substances exciting in
the tongue those motions which ordinarily
produce the sensation of bitter. ~~[illegible]~~ V

V of them is excited by those emotions in the tongue which uniformly exist on pro=
=duce it. We learn further from the
Solution of the cause of the Variety of tastes
that has been given, the cause of the
longings of women for particular kinds
of aliment during their pregnancy. These
longings are generally accompanied with
nausea, or what is called Heaving sickness,
to which (from the habitual Associations of
the Stomach & tongue in its pleasures)
excite those emotions in the tongue that
were formerly associated with the taste
of certain Aliments, — and as the Aliments
thus tasted are generally of a pleasant nature,
they become Objects of Vehement Desire, or
in Other Words of what are called longings.
We shall see hereafter, that all the senses, &
even the brain are upon the same footing in
producing their Specific effects. = over leaf hand

I have heard in like manner of the
sensation of Oil being excited by every
kind of rapid body that was applied to
the tongue. The nerves of the tongue in all these
cases are in a diseased state, and refuse
to act in their ordinary manner from
the impressions that are made upon
them. This Solution of the Cause of
the Variety of tastes accounts for the
many false sensations to which this
Sense is exposed in Different people
& particularly in Sickness. It accounts
for Mercury imparting the taste of Copper
to the tongue in the beginning of a
Salivation. It explains the reason
likewise why in our Dreams we
enjoy the taste of the most agreeable
Aliments. ~~The~~ The Sensation

= I am aware that a different individual nerve
is appropriated by some Physiologists
to each individual Sensation. Should
this be the case, it will not invalidate
the theory I have delivered. The
~~is the sensation would depend in this~~
want of concord between the
~~sensation upon the impression made~~
Sensation and the impression made
upon the tongue will depend in this
case upon a difference in the Nerve
stimulated, instead of different motions
in the same Nerve or set of Nerves:

go to 21.
The sense

The sense of taste like that of touch
is capable of extension & improvement.
The means which have been
found useful for this purpose are
1 Removing all those diseases from
the tongue, and from parts which
which sympathize with it which
pervert or impair its healthy actions.
stomach is very apt to vitiate
the taste, For which reason over
remedies should always be
in the first instance be
applied to the Stomach.
2 A moderate degree of depletion. The
Cooks in Paris maintain that as
in the revolutions of that city,

take physic regularly & constantly
to procure quietness & comfort of
taste. We had a physician some
years ago, who always took a purge

in whom the sense of taste is absent
from the tongue, it may be seated in
fauces or
the stomach, or found Other parts of
the body.

The sense of taste like that of touch
may be extended and improved, by the
following means.

1 Removing all three diseases from
the Stomach tongue and nose which
I said formerly pervert or impair it.

2 By a moderate degree of deputation. the
Cooks in Paris are Richerton tells us in
his recollections of that city take physic
regularly and constantly in order to
preserve acuteness & correctness of taste.
I've had a physician in this city some
years ago who always took a purge

~~Nom that reason or Speech.~~

v 4 By closing the eyes and obliging persons to detect different sapid substances applied to the tongue.

the day before he wants to a feast pro-
=bly for the purpose of increasing his
relish for his food. Tasting has the
same effect.
3 By ~~[illegible]~~ variety in Aliments
and Drinks. The relish for Wine when
it begins to flag upon the taste, may
be revived at any time by eating a
little Cheese. In this way likewise retailers of
Wine ~~[illegible]~~ a return ~~[illegible]~~ the
sweetness of this taste, so as to be able
to purchase by tryal large quantities
of Wine at a time.

The improvement of the sense
of taste is calculated not only to add to
the pleasures of the table, but it may
be rendered useful in various Arts, &

even in medicine. The ~~the~~ nature of
disease is sometimes found out by the
taste of certain Animal fluids, and the
Quality and sound State of many medicines can
only be discovered by means of this
sense. The more acute it can be
rendered by Art, the more benefit we
shall derive from it when employed in
either of the ways that has been
mentioned.

Lect: 13

Of Smelling

The Sense of Smelling is performed by means of a soft pulpy membrane full of pores and small cupels which is extended over the Nostrils & over the Osa Spongiosa - the Septum of the Nose and the ethmoid bone. This membrane is called the pituitary & Schneiderian membrane.

I am aware here Gent: that I differ from Dr Hadles and several Other Physiologists in confining the Sense of Smell only to the parts which have been mentioned. ~~Perhaps it might be confined to the Os~~ Its extent to the Septum & Ethmoid bone seems to have been

intended only to supply the defect of
diseases of the Ossa Spongiosa — for on
these bones the impressions which excite
the sensation of Smell, are chiefly
made. — Why reasons for excluding
the Sphenoid & the Ethmoid
the frontal, and maxillary sinuses from
having any share in producing the
sensation of smell are as follow.

1 If these Sinuses were necessary to
the sense of smelling, those animals
which smell most acutely, would have
them proportionably Large — But this
in Such animals
is not the case. The only difference
is in the size of the Ossa Spongiosa
and not in the frontal sinus. The larger

size of the frontal sinus is intended to
~~extend the~~ defend the heads of Animals,
and to ~~afford~~ afford a more extensive
surface for the origin & insertion of mus:
=cles. —

2 In Animals of the same size which
differ in their acuteness of smelling,
there is no difference in the size of the
frontal sinuses, but a material diffe:
=rence in the size of the Ospa Spongiosa.

3 All the Sinuses have a winding ope:
=ning which is turned away from
the nostrils, and which is directed
~~is~~ is to the throat.

4 The air instead of entering these sinuses
in smelling, appears rather to be discharged

from them in the act of smelling.

5 Pungent substances do not give pain when applied to the membrane which lines the internal surface of these sinuses. ——

I exclude the sinuses further from containing and passing forth a fluid ~~which~~ whose use is said to be to ~~moisten~~ promote ~~the~~ a constant moisture in the mucus of the nose — and that for the following reasons. —

1 We observe the greatest quantity of mucus ~~flows~~ discharged from the nose in Children before the sinuses are formed

2 In no position of the head do

they
~~they~~ ↑ can discharge any ~~[illegible]~~
moisture
~~[illegible]~~ from the nose.--

3 Did these sinuses contain a fluid in ~~them~~, it would unfit them for performing the only use we formerly ascribed to them which was to en= =crease those tremors or vibrations on which I formerly said the Voice depended. —

The mucus which lines the inside of the Nose appears to be ~~[illegible]~~ poured out from ~~the~~ Arteries, and ~~[illegible]~~ deposited in Crypta or cells or in cylindrical ~~[illegible]~~ Ducts in the Nose. ~~[illegible]~~ a due degree of tenacity in it is kept up by the constant effusi= =on of tears from the the Lacrymal ~~gland~~ Sac.

This moisture in the Nose is indispensable

v The heat of the Rose in middle life dispates its superfluous moisture, gradually, but in old people it is discharged in large drops - hence poor old men who are not provided with handkerchiefs generally introduce themselves to you by rubbing their hands across their nose.

The sense of smelling is more universal, than that of taste, from its being more necessary in procuring food. It begins in early life. New born infants appears to be led by this sense to desire their mothers' milk, for they are blind imperfectly for some time after birth. The nerves which form the organ of smell are larger than those which form the organs of taste.

to the Act of Smelling. — V

The ~~internal part of the~~ nose abounds with blood vessels which encrease the sensibility of the nerves of the nose. Those vessels are not only numerous, but slender, — hence the facility with which they are ruptured from Accidents & diseases, more especially in early life. — ||

To the performance of Smelling, the inspiration of Air is absolutely necessary. No smell is perceived by an Animal in whom the aspera Arteria has been cut. The force with which the Air is inspired by the nose tends very much to promote the effect of impressions on the Organs of Smell. — The shorter the

and expiration. —

nor in expiration, or a suspension of inspir.

The sense of smelling is further
rendered more acute by shutting the
mouth. & for the same reason - none
of the effluvia are wasted in the Mouth.

Numerous as the objects of this
sense are they have been divided by Linnaeus
into 7 classes They are 1. the Aromatic - as
the Rose & musk. 2 The fragrant as the Lilly,
& Jessamin. 3 Aromatic as the Spices. 4 Alliaceous
as Garlic Onions, & asafoetida. 5 Foetid - as Valerian
6 Virous - as the poppy Opium. & 7 & nauseous as the
gourd - & scurvy.

The powers of Odors are much more
extensive than has been supposed. They arise
even from metals & stones. In order to

Acts of inspiration, - the latter for
this purpose, - hence when we wish
to smell most acutely, we imitate
the grey hound by a number of short
& quick acts of inspiration. - The
whole of the effluvia of the odorous body
is moreover concentrated by these
means in the nose, and more of it
is conveyed to the lungs. + V
then or wasted in

The variety in the perception of Odors like the Variety
in the objects of taste was supposed by Dr
Reid to depend upon certain Mixtures
formed by the Union of the Odorous
body with the mucus of the nose. VI
tho' more independant than
This sense that of taste is not
altogether so - It is tributary in a small
degree to the eyes. - It is

A

=produce odors, it is 3/4 necessary the matters that
create them should be a gaseous or volatile
state. They are converted into this state by
heat, friction (as metals & stones) fermenta-
solution and mixture. —
The matter which acts upon the nose is
often so subtilized, as to escape observa=
=tion, and almost to excite conception.
A single drop of the oil of a dunnask rose
will often impart such a smell to a pint
of sweet oil, as to render the whole rose
fragrant for several years. A grain of
musk has been known to perfume
a large room for twenty years. The
Urine of the skunk often pervades whole
townships in the Country. Putrid odors often
cleave to woolen garments for several
days. This I once experienced after visiting

A

This Sense, thó more independant, than that of taste, is not wholly so. It is tri=
=fortary in a small degree to the eyes.
It is ~~[illegible]~~ much aided by Sneezing which discharges the pituitated mucus, invigorates the Circulation in the nose, and rouses ~~[illegible]~~ its nerves from an occa=
=sional torpor. How Sneezing is often promoted by a sudden glare of light, and hence we often find it endued by it particularly in the morning, a time when Sneezing is most necessary to persons all the Uses that have been ascribed to it. But there is another proof of the Connection between the Sense of Smelling, and the Organ of

visions, and that is strong doors force
tears from the eyes.

I shall now mention some peculiarities.
~~[illegible]~~ the sense of smelling.

There are
1. It affords some assistance to the sense
of taste in deciding upon the natural
qualities of many aliments. It is often
employed in judging of the quality of
wines. The Madeira Merchant whom
I before mentioned, could distinguish
the wine of every parish in the Island
only by its smell. It is from its sub-
=serviency to the taste that we lose
our relish for many Articles of our
food by ~~[illegible]~~ that fowers of a Cold
which is called Coryza. ——
2 It has sometimes been the means of

V 3 It is intimately connected with the production of diseases. The bowels have sometimes been moved by the smell of Colocynthida, the stomach by the smell of putrid ~~matters~~ & the lungs by the smell of tobacco. But this is not all - the brain - the nerves - the muscles, and even the blood vessels have all been thrown into commotions by effluvia acting upon the ~~nose~~ sense of smelling. ~~And~~ As a proof of this, I shall hereafter mention that the Deliterious effects of some of those effluvia are prevented by closing the nostrils. ——

supporting life. Phungus has often been suspended by it. Lord Bacon mentions an instance of a Nobleman who lived five days wholly upon the smell of Garlic and Onions. V

4 It has an intimate Connection with medicine. Many medicines are applied to the whole body thro' the medium of this sense. Those are chiefly volatile, aromatic and fœtid Substances. —

5 It is connected with the intellectual powers of the mind particularly the imagination. This is so obvious that Rousseau has pronounced the sense of smelling to be the sensitive organ of that faculty of the mind. It is a fact, that the associations of ideas are

√ It even affects the passions. Dyers are
revived ~~by cochineal~~ in dying red, the color
of which is made by the solution of
tin in nitric acid & with a mixture of
cochineal, & ~~they~~ they are depressed
by ~~cochineal~~ dying blue of which Indigo
is the principal ingredient.

more prompt & more numerous than
the medium of this Sense than
any Other. — Dr Cullen's Dom: Instr. essay miller.

Certain Odors have a sensible influence
upon Morals. These passions must be
unnecessarily turbulent, that are
not composed by a morning walk
in a flower garden in the Month of
June. On the Contrary, those are Odors
which are said to have an unfriendly
influence upon the moral faculty. The
extraordinary wickedness of the people
who live in the neighbourhood of Mount
Vesuvius has been ascribed to their
being constantly exposed to the smell
of Sulphur which is emitted by that
mountain.

¶ The long application of odors of any kind to the nose is apt to bring on head ache, coma, Sickness & fatigue. The effects of the fatid Odor of the or Pegu earth oil in the kingdoms of Ava in inducing fatigue are such, that the men who are employed in extracting it from the earth, demand higher Wages than Other ~~kinds of~~ labourers. —

¶ It is a happy Circumstance that our smelling is connected with the Constant involuntary Act of inspiration. The nose by this means becomes a Centinel to the whole System, and thereby often delivers us from the consequences of inhaling ~~sickening~~ or deadly odors.

The books of Moses have been called by a great military Officer "the best orderly book in the World" among other proofs of the truth of this encomium, I shall mention a Stocking Doe, and that is the care which the Jews took to burn the fat, and the Offals of the Animals they offered in Sacrifices, without their Camps thereby to prevent their being annoyed by their offensive smell, or affected by malignant fumes by their passing into a State of putrefaction above ground, & near to their encampments.

9 Persons who live in the Country have a more acute sense of smell than persons who live in towns. Niebuhr tells us, that

the Arabians popsit in so high degree
that they can find out their Camels when
they escape from them to the distance of
four or five miles. The Brahmins cannot
bear to stand near an European soon
after he arrives from sea upon the acct.
of his perspiration being so much
affected by his animal diet during
his voyage, or by his pores in con-
=sequence of their living absorbed by the
Lymphatics and thus conveyed out of
the system by the pores instead of by the bowels wh:
generally become costive from fasting.
The sense of smelling in the Brahmins
is rendered thus acute by their living
wholly upon Vegetables. We read of persons
who could distinguish their acquaintances
by the smell of their perspiration,
from Strangers, and of one man who

could by the same means distinguish
his wife from any Other Women.
[La Cat goes further & mentions the case
of a Monk in Prague who could perceive
by this sense the perspiration of a mar-
=ried Woman from that of a Virgin] a
french Gentleman who visited this city in
the year 1798 requested Dr Pascalis to con-
=duct him to see some of his yellow fever
patients. Such was the acuteness of this
Gentlemans Smell, that he could tell
at the Door of any House he entered,
whether any person had the fever in
it. There is a small perspiration to this fever
which may be distinguished upon ap-
=proaching the bed of a person confined
with it. It is likewise perceptible in the blood.
It is remarkable the sense of smelling

humours exquisitely acute in
About the Crises of mental diseases whether
they end in life or Death. It is more
acute in certain animals than in man
for the necessary purpose in many of them
of defending themselves from their enemies
or obtaining
their food pre-eminent among
the Dog is the Quadrupeds
for the acuteness of this sense. He has
lately given a new proof of it in Eng.
by distinguishing a living from a
dead Sheep under the snow. He howled
only over the Dead Sheep, but scratched over
the living Ones, as if to save them. The
Dog possesses this sense in a very acute
State likewise. To this he is indebted
for discovering under the earth, those
roots upon which he feeds. It is probable
he owes his wonderful Ability to find

his way home, when lost, to the
Acuteness & perfection of this Sense. The
deer often escapes his pursuers by the
Acuteness of his Sense of Smelling — hence
ours Indians when they hunt him,
Crees follow him with the Wind. As
soon as they discover that they are behind
him by the recency of his tracks,
they alter their Course, and either get
upon his flank, or in his front.
The Elephant likewise owes much to
this Sense. His whole proboscis is a
production of Olfactory nerves, and it is
by means of this instrument which
he moves at his pleasure, that he
supplies the want of flexible joints,
and of eyes which command an

extensive View of the Surface of the earth,
in procuring his food. This probopis is
so exquisitely sensible of Odors, that
Dr Boerhaave says he once saw an Ele-
=phant seize a piece of money from
among a thousand pieces, which had
nothing else to distinguish it, but the pe-
=culiar smell it derived from paping
into his masters hand. The size &
extent of the Snout and of the
hound, serves the same purpose as the
probopis in the Elephant in encreasing
the acuteness and extent of its sense
of Smelling. I formerly mentioned the
extent of this sense in birds ~~et~~ that
are allured to their food by the putrid
effluvia emitted by it in a state of
putrefaction.

But the antenæ of Insects in certain Animals serves another purpose besides those which have been mentioned. It brings the Sexes together at certain Seasons of the year in order to propagate their Species. It is remarkable the acute Degree of this Sense is never wasted upon any animal that does not re-quire it ~~[illegible]~~ for some One or more of the purposes that have been men-tioned.

10 Enemy Dogs which are offensive in their Natural or concentrated state are very grateful when they are ~~[illegible]~~ Thus a little musk is agreeable in hair powder & perfumery, and a Spice of Asafatida, or Garlic in a beefsteake.

* The Carcase of a putrifying whale in the neighbourhood of Edin^r. the great extent of putrid odors is still more evinced by certain birds being attracted by them when many hundred miles * go below emitted from Carrion. I shall apply by these facts when I come to treat of the Nature and extent of those exhalations which produce bilious fevers. None of these fine particles of matter which thus affect the nose have ever been discovered by the microscope, or by any Other instrument so as to be obvious to the Sense of Vision. go to 349

* The Odor of the Sweetscented Shrub of N Carolina was perceived 120 miles from the Shore of that State by the Crew of a Ship that arrived in Scotland from Canton in 1811 and the Odor from the flowers on the banks of the Rio Janeiro was so intense as to destroy the smell of tar in a Ship 12 miles off.